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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,732	09/22/2003	Toshio Kobayashi	2038-297	6067

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EXAMINER

COLE, ELIZABETH M

ART UNIT PAPER NUMBER

1771

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/666,732

**Applicant(s)**

KOBAYASHI, TOSHIO

**Examiner**

Elizabeth M. Cole

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,5,11,12,15,18,22 and 24-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,11,12,15,18,22 and 24-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4, 12-17, 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Yeh, U.S. Patent No. 6,509,285. Kobayashi et al discloses a material comprising a nonwoven fabric which comprises first elastic fibers and second inelastic fibers. The nonwoven may be formed so that the first elastic fibers are in a first portion of the fabric and the second inelastic fibers are in a second portion of the fabric, (claim 2). See paragraph 0006. The layers are bonded so that the second fibers are bonded to the first fibers such that the length of the second fibers is longer than the distance between bonding points. See paragraphs. 0008 and 0024. The second fiber can be a single fiber. Kobayashi does not disclose the slip angle of the first and second surfaces. However, since Kobayashi discloses the same structure, it is reasonable to presume that the material of Kobayashi would inherently possess the claimed slip angle. With regard to claims 12 and 31 Kobayashi does not explicitly teach that each of the second fibers is attached to one of the first fibers multiple times in a plurality of said attaching means. However, since Kobayashi does teach that there are a plurality of bonding points and does teach that the inelastic second fibers are preferably continuous fibers, it would appear that the inelastic second fibers would necessarily be bonded to the first fibers multiple times or that it would have been obvious to one of ordinary skill in the art to have selected the number of bonds through

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the process of routine experimentation in order to arrive at a bonded material having the desired elasticity and flexibility.

3. Kobayashi differs from the claimed invention because it does not disclose that the elastic fiber has grooves in portions of it. Yeh teaches that employing fibers having non circular cross sections which comprise a plurality of indentations, (i.e., the claimed convex and concave portions), improves the moisture management and transfer capabilities of the fibers. See abstract and drawings. Kobayashi teaches that the elastic stretchable fabric can be employed in garments such as surgical garments as well as in absorbent garments. See col. 2, lines 60-64. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the lobed fibers of Yeh in the elastic fabrics of Kobayashi, motivated by the teaching of Yeh that such lobed fibers enhance the moisture management and transport properties of the fibers and fabrics comprising the fibers. With regard to the number of concave and convex portions, Yeh teaches that the number of indentations in the fibers should be selected so as to induce capillary action between the layers and throughout the fabric and therefore, since Yeh teaches that the number of indentation is a result effective variable, it would have been obvious to have selected the number of indentations through the process of routine experimentation which resulted in the desired capillarity throughout the fabric. With regard to claim 32, Yeh the teaches multi lobal configurations which would encompass the two convex portions and two concave portions claimed.

4. Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Yeh as applied to claims above, and further in view of Aneja, U.S. Patent No. 5,626,961. Neither Kobayashi nor Yeh disclose that the fibers have a cross section such that one axis is greater than two times another axis. Aneja teaches fibers having an oval cross section wherein one axis would be greater than two times the length of another axis. See figures. Aneja teaches that such fibers have improved moisture transport abilities. See example II. Therefore, it would have been obvious to have employed multi-lobed fibers having an oval cross section as taught by Aneja in the invention of Kobayashi, motivated by the expectation that this would result in further improvements in moisture transport abilities of the fabric.

5. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al, US Patent Application Publication 2002/0061390, in view of Yeh as set forth above and further in view of Welch et al, US Patent Application Publication 2002/0119722. Kobayashi discloses a material as set forth above. Kobayashi differs from the claimed invention because Kobayashi does not disclose that the elastomeric fiber is a polyurethane fiber. Welch teaches that polyurethane fibers are suitable for use as the elastic fibers in nonwoven fabric, see paragraph 0052. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed polyurethane fibers as the elastic fibers in Kobayashi, motivated by the

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teaching of Welsh that such fibers are suitable for use in forming the elastic fibers which impart elasticity to nonwoven fabrics.

6. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Yeh and Welch as applied to claims 5 and 18 above, and further in view of EP 611049. Welch discloses employing polyurethane fibers, but does not disclose that the polyurethane fibers comprise a lubricant. EP 049 teaches that applying a lubricant to polyurethane elastic fibers results in the fiber having a reduced tendency to break. See page 2, paragraph 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added a lubricant to the polyurethane fibers of Welch, motivated by the teaching of EP '049 that this improved the resistance to breaking of the fibers.

7. Claims 22, 24-25, 27-28, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Yeh as applied to claims above, and further in view of Davies, U.S. Patent No. 5,505,889. Kobayashi differs from the claimed invention because it does not teach that the elastic fibers are conjugate fibers. Davies teaches that it was known in the art to form conjugate fibers so that they have a lobed construction. Therefore, in view of the teaching of Davies that it was known to form conjugate fibers so that they have a lobed cross section and the teaching of Yeh that the use of lobed fibers improves the moisture management and transport capabilities of fibers and fabrics comprising the fabric, it would have been obvious to one of ordinary skill in the art to have formed the elastic fibers of Kobayashi so that they had a lobed cross section, motivated by the expectation that this would enhance the moisture

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transport and management of the fabric of Kobayashi, while enhancing the strength and bonding ability through the use of the conjugate fibers. With regard to the number of concave and convex portions, Yeh teaches that the number of indentations in the fibers should be selected so as to induce capillary action between the layers and throughout the fabric and therefore, since Yeh teaches that the number of indentation is a result effective variable, it would have been obvious to have selected the number of indentations through the process of routine experimentation which resulted in the desired capillarity throughout the fabric. With regard to the amendment to claims 22 and 34, see figures 4a and 4b which show that the second component does not define the entire circumferential length of the conjugate fiber but instead appears to define more than 40 but less than 90 percent of the circumferential area.

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Yeh and Davies as applied to claims above, and further in view of Aneja, U.S. Patent No. 5,626,961. Neither Kobayashi nor Yeh disclose that the fibers have a cross section such that one axis is greater than two times another axis. Aneja teaches fibers having an oval cross section wherein one axis would be greater than two times the length of another axis. See figures. Aneja teaches that such fibers have improved moisture transport abilities. See example II. Therefore, it would have been obvious to have employed multi-lobed fibers having an oval cross section as taught by Aneja in the invention of Kobayashi, motivated by the expectation that this would result in further improvements in moisture transport abilities of the fabric.

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9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi in view of Yeh and Davies as applied to claims above, and further in view of Welch and EP 611049. Welch discloses employing polyurethane fibers, but does not disclose that the polyurethane fibers comprise a lubricant. EP 049 teaches that applying a lubricant to polyurethane elastic fibers results in the fiber having a reduced tendency to break. See page 2, paragraph 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added a lubricant to the polyurethane fibers of Welch, motivated by the teaching of EP '049 that this improved the resistance to breaking of the fibers.

10. Applicant's arguments filed 9/7/06 have been fully considered but they are not persuasive. Applicant argues that Yeh is non analogous art because Yeh is concerned with woven rather than nonwoven fabrics. However, Yeh teaches at col. 2, lines 35-37, that the fabric can be formed by weaving, knitting or a nonwoven method. Therefore, Yeh teaches nonwoven fabrics and therefore Yeh and Kobayashi are in the identical field of endeavor. Further, it is noted that the teachings regarding moisture wicking and transport and the use of particular types and configurations of fibers to facilitate moisture wicking and transport would be pertinent to both woven and nonwoven fabrics and even if Yeh did not specifically teach nonwoven fabrics, the reference would not be nonanalogous art to either the instant invention or to Kobayashi.

11. Applicant argues that Yeh is concerned with moisture management and that this is not reasonable pertinent to the particular problem with which the instant inventor was



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concerned. However, as set forth above, Yeh is not nonanalogous art since it specifically references nonwoven fabrics.

12. Applicant argues that the office action has not set forth with reasonable clarity how the applied references teach or suggest the claim language that in each of said attaching areas, 4 to 15 of said second fibers are attached to one said first fiber. However, Kobayashi does teach that there are a plurality of bonding points and does teach that the inelastic second fibers are preferably continuous fibers, it would appear that the inelastic second fibers would necessarily be bonded to the first fibers multiple times or that it would have been obvious to one of ordinary skill in the art to have selected the number of bonds through the process of routine experimentation in order to arrive at a bonded material having the desired elasticity and flexibility. Thus, Kobayashi teaches that the continuous second fibers are intermittently bonded to the first fibers, for example, in figure 1, the long fibers 6 which are part of the inelastic layer are intermittently bonded to the lower layer at bonding points 4. As shown in the figure, there are at least four second fibers, (fibers 6) which are bonded at the bonding points. The bonding points bond the first and second layers together and would thus bond the plurality of second fibers (6) to a first fiber. See paragraphs 0022-0025.

13. With regard to claim 12, Applicant argues that the reasoning set forth in the office action is flawed because it is not necessary, if at all possible that the at least two inelastic fiber ( 6) in the upper web (3) of Kobayashi are repeatedly bonded to each elastic fiber (5) in the lower web (2) due to the inherently randomness of both webs due to both webs being nonwoven. However, initially it is noted that the web 2 can be

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woven or nonwoven, (see paragraph 0023). The fibers making up the web 2 can be short or continuous. Therefore, the web 2 can comprise continuous fibers which are arrayed in a woven or nonwoven configuration. Kobayashi teaches bonding the layers together at a plurality of bonding points. Therefore, the person of ordinary skill in the art seeking to bond the two layers together would have selected the number and configuration of bonds which produced the optimum strength and elasticity in the final structure.

14. With regard to claim 22, Applicant argues that Davies does not teach the limitation that "in said unsplit section of each said conjugate fiber, the respective second fibers define 40-90% of an entire circumferential length of said conjugate fibers".

However, it is noted that this limitation was added in the current amendment. The limitation is addressed in the rejection above, specifically, by noting that figs. 4a and 4b show to component fibers wherein the second component does not define the entire circumferential length of the conjugate fiber.

15. With regard to the new claims, rejections for these claims are set forth above.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (571) 272-1478.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.



Elizabeth M. Cole  
Primary Examiner  
Art Unit 1771

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